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# LANL's Waste Management Transportation Program

2010 to 2020



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Operated by Triad National Security, LLC for the U.S. Department of Energy's NNSA

# Introduction

- Los Alamos National Laboratory (LANL) has developed a safe, compliant, and cost-effective transportation program that moves over 5,000 m<sup>3</sup> of regulated waste off site each fiscal year.
- This program handles all waste types including universal waste, New Mexico Special Waste, TSCA and RCRA wastes, low level and mixed low-level wastes, and TRU and MTRU wastes.
- This program allows for the treatment and disposal of hazardous wastes while maintaining the protection of people, facilities, and the environment
- This program provides critical support to a wide variety of missions across the laboratory site.

*LANL could generate any type of radioactive waste and dispose of it onsite.*

# Introduction

- **Los Alamos National Laboratory (LANL) has undergone a shift in the way the laboratory manages, transports, and disposes of waste generated by mission operations.**
- **For more than 60 years, LANL emphasized management and disposal of waste in on-site disposal facilities.**
- **This allowed transportation and disposal costs to be kept to a minimum and transportation and compliance issues were easily handled.**
- **However, over time, LANL committed to shifting all waste disposal to offsite Treatment Storage and Disposal Facilities (TSDFs).**

# Shifting from Onsite to Offsite Waste Disposal

- As regulatory requirements changed, LANL began shifting waste disposal operations from onsite to offsite beginning with the cessation of disposing regulated hazardous waste (universal, NMSW, TSCA, and RCRA).
- This was followed by the cessation of disposing TRU and MTRU waste onsite with the opening of the WIPP TSDF.
- In FY2010, LANL began closing its onsite LLW disposal cells and by FY2014, all waste types were being shipping offsite for treatment and disposal.

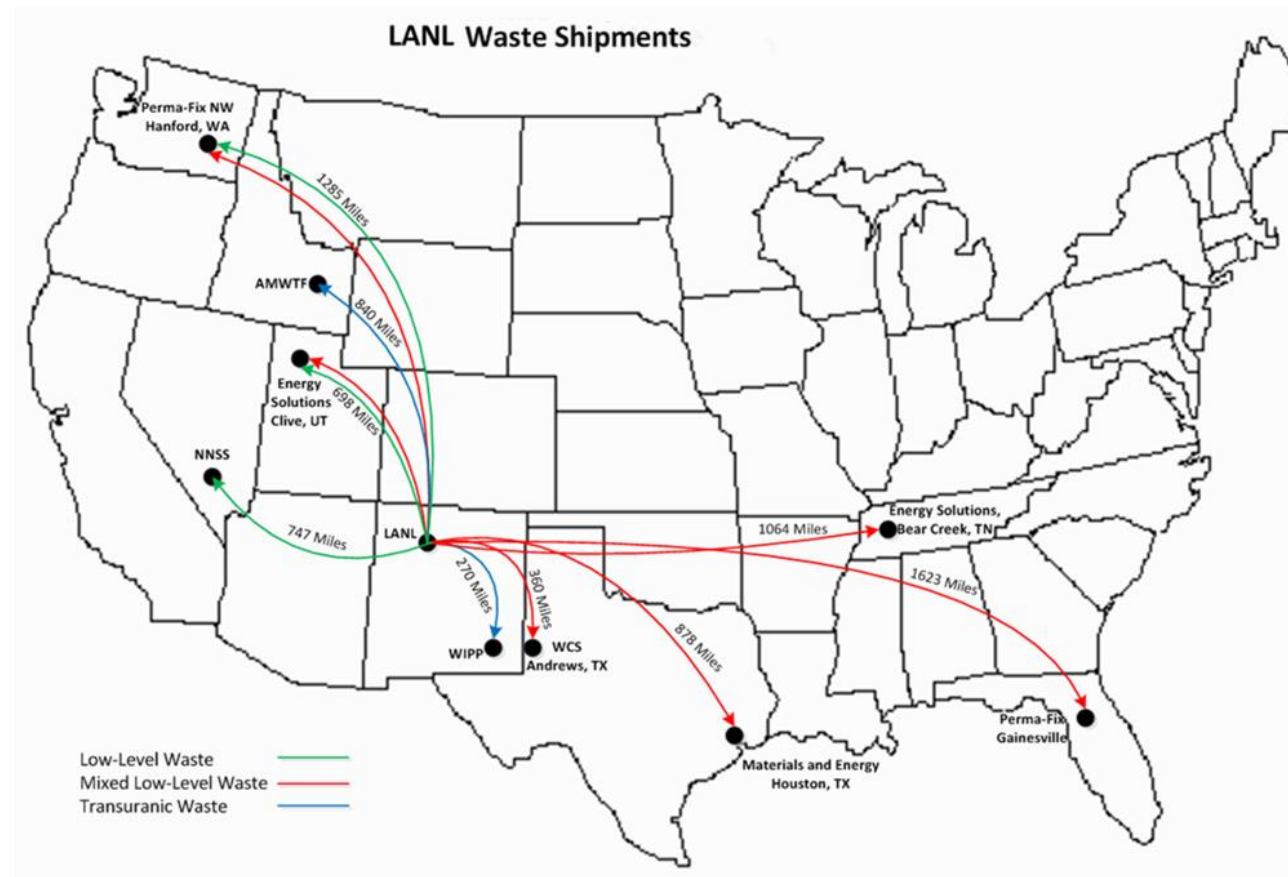


# Approach to New Waste Management Model

- **Develop and standardize a cradle-to-grave waste management system with all LANL Generators.**
- **Draw from proven waste management models at other DOE sites.**
- **Pilot this model through several Generator waste management programs.**
- **Develop a robust transportation program to ship waste to offsite TSDFs.**

***Centralized, compliant, and efficient cradle-to-grave waste management.***

# LANL Enduring Waste Management Program Transformation FY2010-FY2020 Regulated Waste Disposition



*Between 2010 and 2020, 100% of all waste types were required to be shipped offsite.*

# LANL Enduring Waste Management Program, EnergySolutions at Clive, Utah



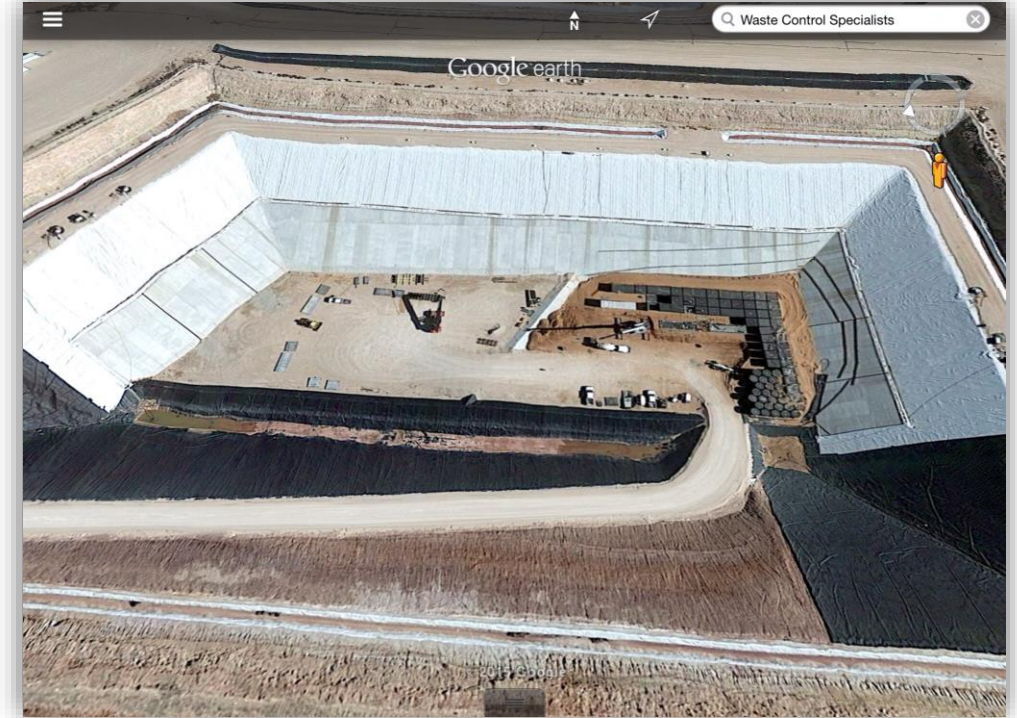
***EnergySolutions, LLC accepts Class A LLW and MLLW from LANL***

# LANL Enduring Waste Management Program, Nevada National Security Site (NNSS) at Area 5 Disposal Facility



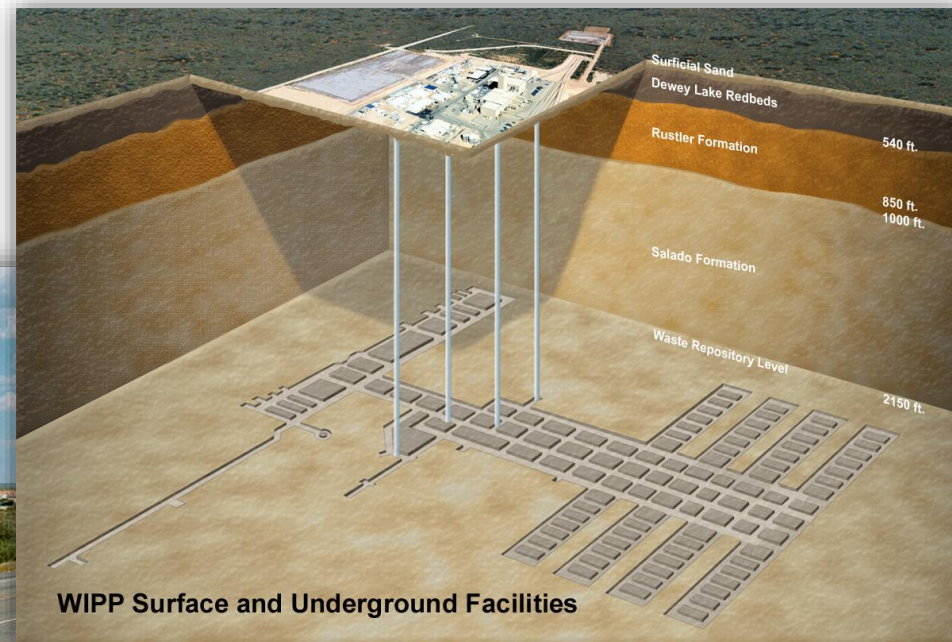
*NNSS can accept Class A and greater LLW and treated MLLW from LANL*

# LANL Enduring Waste Management Program, Waste Control Specialists (WCS) Disposal Facility at Andrews, Texas



**WCS can accept Class A, Class B, Class C, and GTCC LLW and MLLW from LANL**

# LANL TRU Waste Management Program, Waste Isolation Pilot Plant



WIPP Surface and Underground Facilities



Contact-handled waste

***WIPP can only accept TRU and MTRU waste from LANL***

# The LANL Transportation Program

- **The LANL Transportation Program for the shipment of regulated waste consists of two primary organizations both operating under the Environmental and Waste Programs Director:**
  - The Waste Management Division: Packages and transports Enduring Mission waste types for offsite treatment and disposal including universal waste, NMSW, TSCA and RCRA wastes, low level and mixed low-level radioactive wastes, and limited TRU and MTRU waste types.
  - NPI: Packages and transports weapons related transuranic waste types for offsite treatment and disposal at the WIPP facility.
  - Both Enduring Mission and TRU shipping program currently operate under the regulatory oversight of EPC-WMP and OS-PT.

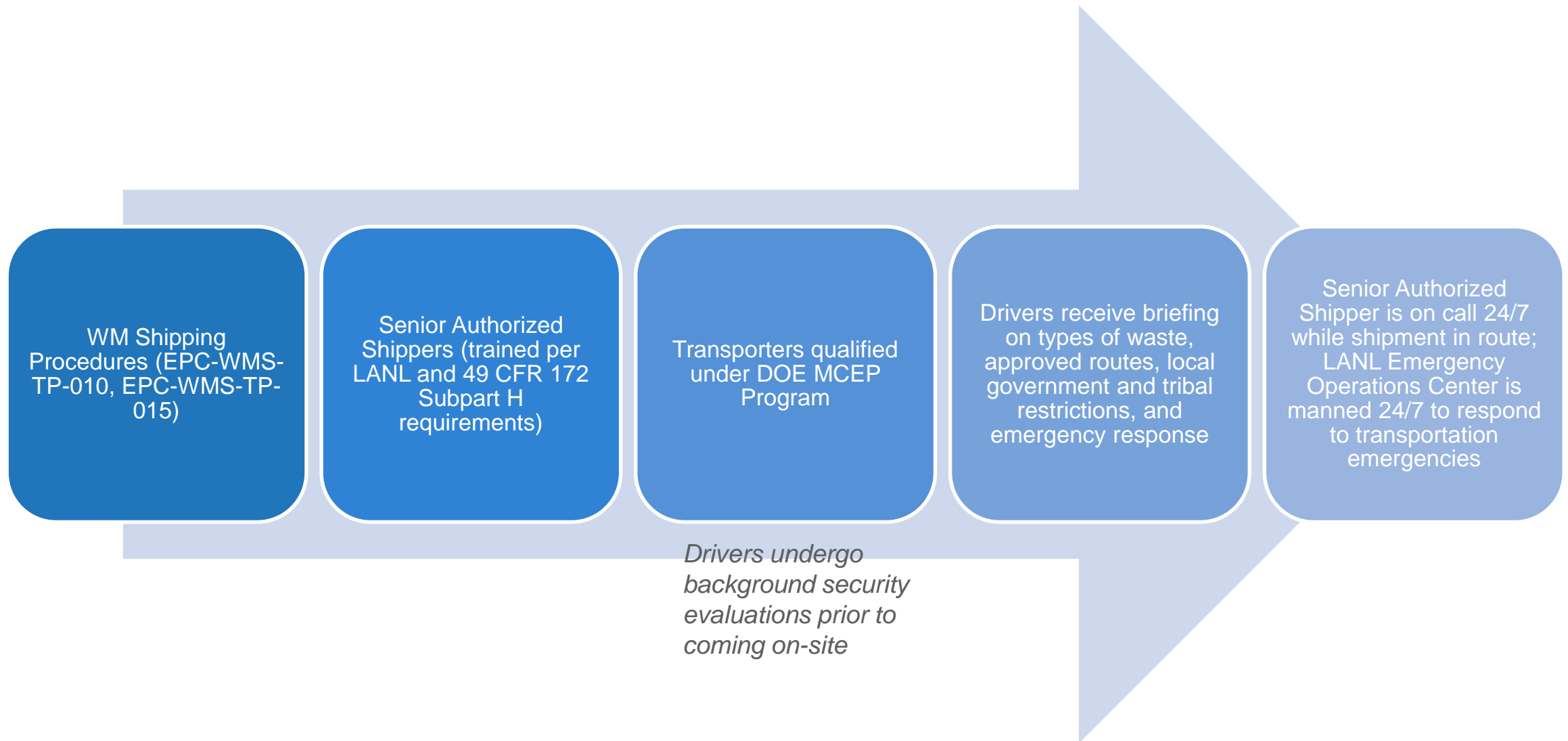
***Safe, centralized, compliant, and efficient.***

# The LANL Waste Management Division Operations Program

- The LANL Waste Management Division Operations Program consists of two groups: **Waste Generator Services** and **Waste Management Services**.
  - **Waste Generator Services Group (WGS)** - Consists of approximately 50 trained professionals who support waste generators in the planning, characterization, packaging, and storage of newly generated Enduring Mission waste.
  - **Waste Management Services Group (WMS)** - Consists of a staff of approximately 35 people trained in the area of hazardous materials storage, packaging, transportation, treatment, and disposal.



# The LANL Waste Management Division Transportation Program



# The LANL NPI Division Operations Program

- **The LANL NPI Operations Program consists of two groups: NPI-6 and NPI-7:**

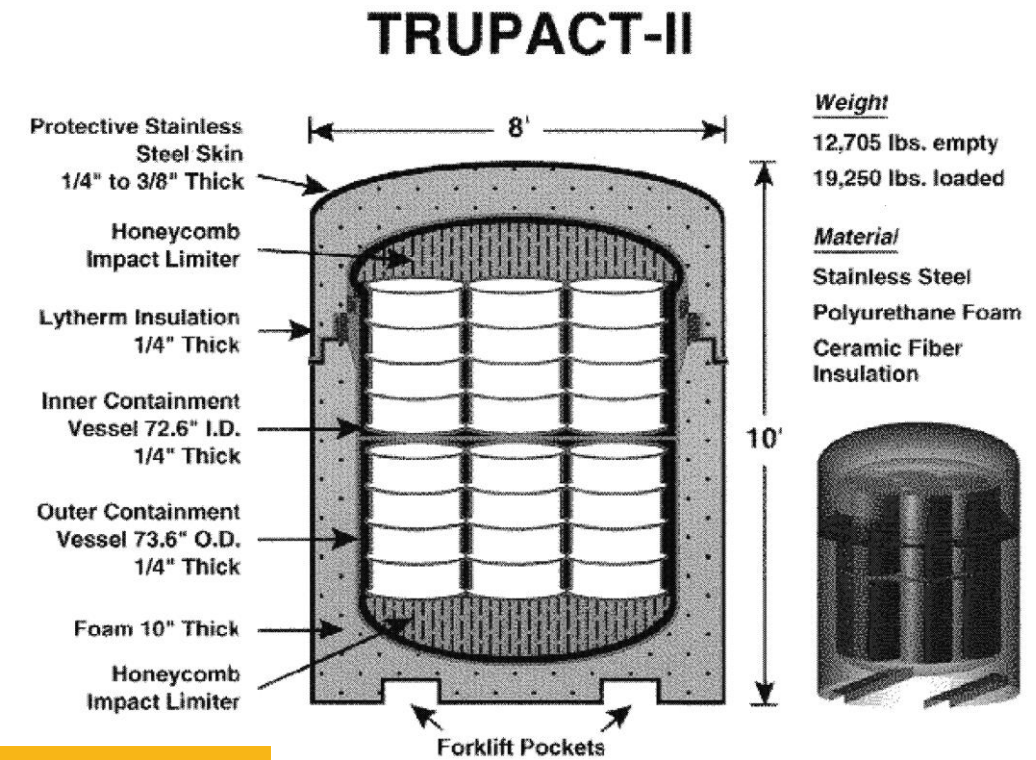
- NPI-6 consists of approximately 100 individuals trained to support TRU and MTRU waste generators in the planning, characterization, packaging, and storage of newly generated transuranic waste.
- NPI-7 consists of a staff of approximately 130 people trained in the area of hazardous materials storage, packaging, transportation, treatment, and disposal of TRU/MTRU waste to WIPP.



# The LANL NPI TRU Division Transportation Program

- NPI-7 manages the processes and procedures governing the movement of TRU/MTRU waste onsite and offsite.

- LANL ships TRU waste to WIPP in different containers: 55 and 85-gallon drums, as well as large containers for large dimension waste.
- Waste Containers are certified before shipment to WIPP by CCP meeting WIPP Waste Acceptance Criteria.
- Highly qualified drivers, using predetermined routes, transport TRU waste in certified casks called TRUPACTs designed to withstand worst-case accident scenarios.



***NPI-7 is the TRU Waste Generator for Enduring Mission TRU Waste.***

# WIPP Route – LANL to Carlsbad

Shipments from LANL use NM 4 to NM 502, then east to U.S. 84/285 (at Pojoaque) and continue south on U.S. 84/285 to the relief route (NM 599), then north on I-25 to U.S. 285 and south to Carlsbad and WIPP.



# DOE Motor Carrier Evaluation Program

## MOTOR CARRIER EVALUATION PROGRAM (MCEP)

- The Dept. of Energy Office of Packaging and Transportation (OPT) manages and implements the DOE MCEP in accordance with [DOE Order 460.2](#).
- MCEP maintains and monitors a list of evaluated motor carriers from which DOE/NNSA field offices and contractors select to ship their radioactive materials and hazardous wastes.
- LANL only uses carriers that have been evaluated and qualified under the MCEP program to haul hazardous, low-level, mixed low-level, TRU, MTRU wastes from the Laboratory
- In accordance with DOE Order 460.2, OPT serves as federal sponsor and advisor for DOE's Transportation Management Council. TMC membership is made up of DOE, NNSA federal and contractor personnel involved in traffic management, transportation, and shipping operations, and transportation safety activities.

***During Summer 2019, WIPP Drivers Surpassed 15 Million Safe Miles***

# Summary

- Over the last 10-15 years, LANL's Waste Management Program has transitioned from primarily managing waste on-site to relying solely on off-site disposal options;
- LANL has developed and standardized a cradle-to-grave waste management system for all LANL Generators;
- LANL has developed a robust transportation program to ship waste to off-site TSDFs;
- LANL's program relies on several key components:
  - Highly qualified and trained authorized shippers
  - Programs and procedures that provide step by step instructions for preparing waste for shipment
  - Containers that meet stringent testing requirements per 49 CFR and 10 CFR 71
  - Predetermined safe routing for trucks carrying TRU and MTRU to WIPP as well as trucks carrying LLW to NNSS;
  - Motor Carriers that have been qualified through a rigorous evaluation program (MCEP);
  - Emergency preparedness in the event of an accident or release

Questions?